## REMARKS

Claims 1-2, 4-15, 17-32 and 36 remain pending in the application. Claims 1, 11, 17, 18 and 25 are amended. Claims 3, 16 and 33-35 are cancelled. Applicant respectfully requests for allowance of all the pending claims based on following discussions.

### Drawing Objections

The drawings of the application are objected to under 37 C.F.R. 1.83(a). Specifically, Examiner requests that the embodiment combining an impeller and two conduits as descried in claims 11-25, 25-27, and 34-35 be shown in the drawings.

Claims 11-15 and 25-27 have been amended to exclude the element of combining an impeller and two conduits. Thus, all the features described in claims 11-15 and 25-27 are now clearly shown in FIG. 4 of the application. Claims 34 and 35 are cancelled. As such, Applicant respectfully requests that the objections be withdrawn.

### Rejections under 35 U.S.C. §112

Claims 12-15, 25-27, 34, and 35 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Specifically, Examiner rejects those claims, as they are directed to embodiments improperly combining FIGs. 3 and 4 of the application.

As discussed above, the dependencies of claims 12-15 and 25-27 have been amended. Claims 34 and 35 are cancelled. As such, Applicant respectfully requests that the rejections be withdrawn.

**Rejections under 35 U.S.C. §103**

Claims 1-4, 16, 17, 28-33 and 36 are rejected under 35 U.S.C. §103(a) as being unpatentable over FIG. 1 of the instant application (regarded as Applicant's Admitted Prior Art and noted as "AAPA" hereinafter) in view of US Patent No. 1,287,020 to Hinsch (hereinafter referred to as "Hinsch").

Independent claim 1 is directed to a vacuum pump comprising a first pumping section, a first pump inlet through which fluid can enter the pump and pass through the first pumping section towards a pump outlet, second and third pumping sections, a second pump inlet through which fluid can enter the pump, the second and third pumping sections being arranged such that fluid entering the pump through the second inlet is separated into a first stream passing through the second pumping section towards the pump outlet and a second stream passing through the third pumping section away from the pump outlet, means for conveying fluid passing through the third pumping section towards the outlet, and at least one additional pumping section downstream from the first, second and third pumping sections for receiving fluid therefrom and outputting fluid towards the outlet. As amended, claim 1 now includes language "wherein the second and third pumping sections are located between the first pumping section and said at least one additional pumping section."

A combination of AAPA and Hinsch would not necessarily result in a vacuum pump "wherein the second and third pumping sections are located between the first pumping section and said at least one additional pumping section." AAPA teaches a pump having three pumping sections 18, 20 and 22. Hinsch teaches, in FIG. 8, a pair of rotors 11 and 6 disposed at two sides of an inlet, and driving fluid in two opposite

directions. Combining Hinsch and AAPA is likely to result in a pump where the blades of the pumping stage 18 of AAPA are reversed to drive fluid in an opposite direction to the pumping stage 20. Nothing in AAPA and Hinsch suggests a fourth pumping section, let alone the specific arrangements of the four pumping sections as described by the claimed invention.

It would not have been obvious for a person skilled in the art to modify the combination of AAPA and Hinsch into a pump having four pumping sections in a specific arrangement as described by the claimed invention. As shown, for example, in FIG. 2 of the application, the claimed pump has the first pumping section 106 and third pumping section 110 drive fluid streams against each other in a relatively short distance. Given the context where first and third pumping sections are turbomolecular pumps that require attenuated presence of gas molecules in order for them to function properly, having two turbomolecular pumps blow gas molecules against each other in their faces is not something a person skilled in the art would naturally think of doing when designing pumps. Certainly, designing pumps based on gas molecules' behavior is not something Hinsch concerns. Hinsch is about conational rotary vane pumps dealing with fluid in viscosity mode. It would not have been obvious for a person skilled in the art to rely on Hinsch's teaching in designing turbomolecular pumps, let alone combing it with AAPA to arrive at the specific arrangement of pumping sections as described in the claimed invention.

As such, claim 1 as amended is patentable over AAPA in view of Hinsch under section 103. Accordingly, claims 2, 4, 17, 28-32 and 36 that depend from claim 1 and include all the limitations recited therein are patentable over the cited prior art references

under section 103, as well. Applicant notes that claims 3, 16 and 33 are canceled, and withdrawn from consideration.

**Rejections under 35 U.S.C. §112**

Applicant acknowledges with thanks that claims 5-11 and 18-24 are allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

## CONCLUSION

Applicant has made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Applicant does not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee to deposit account number 50-4244.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Respectfully submitted,

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